Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) An integrated optical time division multiplexing (OTDM) module comprising:

an integrated modulator chip for generating at least first and second optical Return-to-Zero ~~RZ~~ signal streams; and

an integrated time-delay chip coupled to the integrated modulator chip for introducing a prescribed optical delay between said at least first and second optical ~~RZ~~ Return-to-Zero signal streams and for combining said at least first and second optical Return-to-Zero ~~RZ~~ signal streams after introduction of the prescribed delay, the integrated time-delay chip including a plurality of waveguides operable to guide the at least first and second optical Return-to-Zero signal streams through the integrated time-delay chip.

2. (Original) An integrated OTDM module according to claim 1 wherein the integrated modulator chip is a twin-modulator chip.

3. (Currently Amended) An integrated OTDM module according to claim 1 wherein the integrated time-delay chip introduces a fixed optical time delay between said first and second optical Return-to-Zero ~~RZ~~ signal streams.

4. (Currently Amended) An integrated OTDM module according to claim 1 wherein the integrated time-delay chip introduces a ~~tuneable~~ tunable optical time delay between said first and second optical Return-to-Zero ~~RZ~~ signal streams.

5. (Currently Amended) An integrated OTDM module according to claim 1 wherein the time-delay chip comprises first and second waveguides for receiving said first and second optical Return-to-Zero ~~RZ~~ signal streams from said integrated modulator chip, one of said first and second waveguides being of greater length than other of said first and second waveguides and both first and second waveguides being integrated within the fixed delay chip.

6. (Original) An integrated OTDM module according to claim 5 wherein an electrode is deposited over a portion of said first or second waveguide of the time-delay chip that is greater in length, wherein a voltage applied to the electrode is used for fine tuning the optical time delay introduced by the time-delay chip.

7. (Original) An integrated OTDM module according to claim 1 wherein an epoxy is used to couple optically and mechanically the integrated modulator chip to the integrated time-delay chip.

8. (Original) An integrated OTDM module according to claim 1 wherein an optical refractive index matching layer is used to couple optically and mechanically the integrated modulator chip to the integrated time-delay chip.

9. (Original) An integrated OTDM module according to claim 7 wherein the epoxy has a refractive index n, the integrated modulator chip has a refractive index n1, the integrated time-delay chip has a refractive index n2 and wherein the refractive index n of the epoxy is defined by $n1 < n < n2$.

10. (Original) An integrated OTDM module according to claim 8 wherein the optical refractive index matching layer has a refractive index n, the integrated modulator chip has a refractive index n1, the integrated time-delay chip has a refractive index n2 and wherein the refractive index n of the optical refractive index matching layer is defined by $n1 < n < n2$.

11. (Original) An integrated OTDM module according to claim 1 wherein the integrated modulator chip has a refractive index n1 and an optical mode field diameter OMFD1, the integrated time-delay chip has a refractive index n2 and an optical mode field diameter OMFD2 and wherein the refractive index n1 and optical mode field diameter OMFD1 of the integrated modulator chip is substantially similar to the refractive index n2 and optical mode field diameter OMFD2 of the integrated time-delay chip .

12. (Original) An integrated OTDM module according to claim 1 wherein collimating lenses are used to couple the integrated modulator chip to the integrated time-delay chip.

13. (Currently Amended) An integrated OTDM module according to claim 1 wherein the prescribed optical delay introduced between said first and second optical Return-to-Zero ~~RZ~~ signal streams is approximately one half the period of each of first and second optical Return-to-Zero ~~RZ~~ signal streams.

14. (Currently Amended) An integrated optical time division multiplexing (OTDM) module comprising an integrated modulator chip coupled to an integrated time-delay chip via an optical refractive index matching layer wherein:

the integrated modulator chip comprises an input fiber tube for receiving an end portion of an input fiber, first and secoud modulators each connected on input ends thereof to the input fiber tube and on output ends thereof to respective first and second variable optical attenuators, said first and second variable optical attenuators having respective first and second outputs coupled to an input end of said integrated time-delay chip; and

the integrated time-delay chip comprises first and second waveguides, operable to guide the first and second optical Return-to-Zero signal streams through the integrated time-delay chip, for receiving said respective first and second outputs of said first and second variable optical attenuators of thc integrated modulator chip, one of said first and second waveguides being of greater length tban the other of said first and second waveguides, the integrated time-delay chip further comprising an output fiber tube for securing an end portion of an output fiber.

15. (Currently Amended) An integrated optical time division multiplexing (OTDM) module comprising an integrated modulator chip coupled to an integrated time-delay chip via collimating lenses wherein:

the integrated modulator chip comprises an input fiber tube for receiving an end portion of an input fiber, first and second modulators each connected on input ends thereof to the input fiber tube and on output ends thereof to respective first and second variable optical attenuators, said first and second variable optical attenuators having respective first and second outputs coupled to an input end of said integrated time-delay chip; and

the integrated time-delay chip comprises first and second waveguides, operable to guide the first and second optical Return-to-Zero signal streams through the integrated time-delay chip, for receiving said respective first and second outputs of said first and second variable optical attenuators of the integrated modulator chip, one of said first and second waveguides being of greater length than the other of said first and second waveguides, the integrated time-delay chip further comprising an output fiber tube for securing an end portion of an output fiber.

16. (Original) An integrated optical time division multiplexing (OTDM) module comprising an integrated time-delay chip coupled to an integrated modulator chip via collimating lenses wherein:

the integrated time-delay chip comprises an input fiber tube for receiving an end portion of an input fiber carrying an input optical signal stream, the integrated time-delay chip further comprising first and second waveguides each carrying an optical signal stream derived from said input optical signal stream and wherein one of said first and second waveguides is greater in length than the other of said first and second waveguides, said first and second waveguides used for delivering said optical signal streams to the integrated modulator chip; and

the integrated modulator chip comprises first and second waveguides for receiving said optical signal streams from said integrated time-delay chip, the integrated modulator chip further comprising first and second variable optical attenuators each connected on output ends thereof to respective first and second modulators and wherein an end facet of the integrated modulator chip is coated with a highly reflective coating.

17. (Currently Amended) An integrated optical time division multiplexing (OTDM) module comprising:

an integrated time-delay chip adapted to receive an incoming short-pulse signal stream from a pulsed source, said integrated time-delay chip comprising first and second waveguides and adapted to divide the incoming short-pulse signal stream into first and second short-pulse signal streams for transmission along said first and second waveguides of said time-delay chip, one of said first and second waveguides being of greater length than other of said first and second waveguides thereby introducing a prescribed optical delay between said first and second short-pulse signal streams; and

an integrated modulator chip coupled to said integrated time-delay chip, said integrated modulator chip comprising first and second waveguides and adapted to receive said first and second short-pulse signal streams from the integrated time-delay chip and to generate first and second optical Return-to-Zero ~~RZ~~ signal streams from said first and second short-pulse signal streams, wherein an end facet of said integrated modulator chip is coated with a reflective coating to reflect said first and second optical Return-to-Zero ~~RZ~~ signal streams along said first and second waveguides of the integrated modulator chip towards said first and second waveguides of the integrated time-delay chip.

18. (Currently Amended) An integrated optical time division multiplexing (OTDM) module comprising:

an integrated modulator chip for generating a plurality of optical Return-to-Zero ~~RZ~~ signal streams; and

an integrated time-delay chip coupled to the integrated modulator chip for introducing prescribed optical time delays between each of said plurality of optical Return-to-Zero ~~RZ~~ signal streams and for combining said plurality of optical Return-to-Zero ~~RZ~~ signal streams after introduction of said prescribed delays, the integrated time-delay chip including a plurality of waveguides operable to guide the plurality of optical Return-to-Zero signal streams through the integrated time-delay chip.